## SEQUENCE LISTING

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<110> Steward, Lance E.
      Fernandez-Salas, Ester
      Aoki, Kei Roger
<120> Fret Protease Assays For Clostridial
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<130> P-AR 4802
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Glu Ala Asn Gln Arg Ala Thr Lys
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Met Ala Glu Asp Ala Asp Met Arg Asn Glu Leu Glu Glu Met Gln Arg
Arg Ala Asp Gln Leu Ala Asp Glu Ser Leu Glu Ser Thr Arg Arg Met
Leu Gln Leu Val Glu Glu Ser Lys Asp Ala Gly Ile Arg Thr Leu Val
                             40
Met Leu Asp Glu Gln Gly Glu Gln Leu Glu Arg Ile Glu Gly Met
                        55
Asp Gln Ile Asn Lys Asp Met Lys Glu Ala Glu Lys Asn Leu Thr Asp
                     70
                                         75
Leu Gly Lys Phe Cys Gly Leu Cys Val Cys Pro Cys Asn Lys Leu Lys
Ser Ser Asp Ala Tyr Lys Lys Ala Trp Gly Asn Asn Gln Asp Gly Val
                                105
Val Ala Ser Gln Pro Ala Arg Val Val Asp Glu Arg Glu Gln Met Ala
                             120
                                                 125
         115
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Ile Ser Gly Gly Phe Ile Arg Arg Val Thr Asn Asp Ala Arg Glu Asn
                        135
Glu Met Asp Glu Asn Leu Glu Gln Val Ser Gly Ile Ile Gly Asn Leu
                                       155
                    150
Arg His Met Ala Leu Asp Met Gly Asn Glu Ile Asp Thr Gln Asn Arg
                                    170
                165
Gln Ile Asp Arg Ile Met Glu Lys Ala Asp Ser Asn Lys Thr Arg Ile
                               185
Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser Gly
                            200
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Gly Ala Ser Gln Phe Glu Thr Ser
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<213> Homo sapiens
<400> 4
Met Ser Ala Thr Ala Ala Thr Ala Pro Pro Ala Ala Pro Ala Gly Glu
Gly Gly Pro Pro Ala Pro Pro Pro Asn Leu Thr Ser Asn Arg Arg Leu
                                25
Gln Gln Thr Gln Ala Gln Val Asp Glu Val Val Asp Ile Met Arg Val
                             40
Asn Val Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp
Asp Arg Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser
                     70
Ala Ala Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Leu Lys Met Met
                                    90
 Ile Ile Leu Gly Val Ile Cys Ala Ile Ile Leu Ile Ile Ile Val
                                 105
 Tyr Phe Ser Ser
         115
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<210> 5 <211> 8

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<213> Artificial Sequence
<220>
<223> synthetic construct
<400> 5
Asp Thr Lys Lys Ala Val Lys Trp
<210> 6
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<212> PRT
<213> Artificial Sequence
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<400> 6
Arg Asp Gln Lys Leu Ser Glu Leu
<210> 7
<211> 206
<212> PRT
<213> Rattus sp.
<400> 7
Met Ala Glu Asp Ala Asp Met Arg Asn Glu Leu Glu Glu Met Gln Arg
                                     10
Arg Ala Asp Gln Leu Ala Asp Glu Ser Leu Glu Ser Thr Arg Arg Met
                                 25
Leu Gln Leu Val Glu Glu Ser Lys Asp Ala Gly Ile Arg Thr Leu Val
                            40
Met Leu Asp Glu Gln Gly Glu Gln Leu Glu Arg Ile Glu Glu Gly Met
Asp Gln Ile Asn Lys Asp Met Lys Glu Ala Glu Lys Asn Leu Thr Asp
Leu Gly Lys Phe Cys Gly Leu Cys Val Cys Pro Cys Asn Lys Leu Lys
Ser Ser Asp Ala Tyr Lys Lys Ala Trp Gly Asn Asn Gln Asp Gly Val
Val Ala Ser Gln Pro Ala Arg Val Val Asp Glu Arg Glu Gln Met Ala
                             120
Ile Ser Gly Gly Phe Ile Arg Arg Val Thr Asn Asp Ala Arg Glu Asn
                         135
Glu Met Asp Glu Asn Leu Glu Gln Val Ser Gly Ile Ile Gly Asn Leu
```

```
155
145
                    150
Arg His Met Ala Leu Asp Met Gly Asn Glu Ile Asp Thr Gln Asn Arg
                165
                                    170
Gln Ile Asp Arg Ile Met Glu Lys Ala Asp Ser Asn Lys Thr Arg Ile
Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser Gly
                            200
<210> 8
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<220>
<223> synthetic construct
<400> 8
Gln Ile Asp Arg Ile Met Glu Lys
<210> 9
<211> 8
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic construct
<400> 9
Glu Arg Asp Gln Lys Leu Ser Glu
                5
<210> 10
<211> 8
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic construct
<400> 10
Glu Thr Ser Ala Ala Lys Leu Lys
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<210> 11
<211> 8
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic construct
<400> 11
Gly Ala Ser Gln Phe Glu Thr Ser
<210> 12
<211> 206
<212> PRT
<213> Mus musculus
<400> 12
Met Ala Glu Asp Ala Asp Met Arg Asn Glu Leu Glu Glu Met Gln Arg
                                    10
Arg Ala Asp Gln Leu Ala Asp Glu Ser Leu Glu Ser Thr Arg Arg Met
                                25
            20
Leu Gln Leu Val Glu Glu Ser Lys Asp Ala Gly Ile Arg Thr Leu Val
Met Leu Asp Glu Gln Gly Glu Gln Leu Glu Arg Ile Glu Glu Gly Met
                        55
Asp Gln Ile Asn Lys Asp Met Lys Glu Ala Glu Lys Asn Leu Thr Asp
                                        75
                    70
Leu Gly Lys Phe Cys Gly Leu Cys Val Cys Pro Cys Asn Lys Leu Lys
                                    90
                85
Ser Ser Asp Ala Tyr Lys Lys Ala Trp Gly Asn Asn Gln Asp Gly Val
                                105
.
Val Ala Ser Gln Pro Ala Arg Val Val Asp Glu Arg Glu Gln Met Ala
                            120
Ile Ser Gly Gly Phe Ile Arg Arg Val Thr Asn Asp Ala Arg Glu Asn
                        135
                                            140
Glu Met Asp Glu Asn Leu Glu Gln Val Ser Gly Ile Ile Gly Asn Leu
                                         155
                    150
Arg His Met Ala Leu Asp Met Gly Asn Glu Ile Asp Thr Gln Asn Arg
                                    170
Gln Ile Asp Arg Ile Met Glu Lys Ala Asp Ser Asn Lys Thr Arg Ile
                                185
Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser Gly
                            200
                                                 205
        195
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<210> 13

<211> 212

<212> PRT

<213> Drosophila sp.

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<400> 13
Met Pro Ala Asp Pro Ser Glu Glu Val Ala Pro Gln Val Pro Lys Thr
                 5
                                    10
Glu Leu Glu Glu Leu Gln Ile Asn Ala Gln Gly Val Ala Asp Glu Ser
Leu Glu Ser Thr Arg Arg Met Leu Ala Leu Cys Glu Glu Ser Lys Glu
                            40
Ala Gly Ile Arg Thr Leu Val Ala Leu Asp Asp Gln Gly Glu Gln Leu
Asp Arg Ile Glu Glu Gly Met Asp Gln Ile Asn Ala Asp Met Arg Glu
Ala Glu Lys Asn Leu Ser Gly Met Glu Lys Cys Cys Gly Ile Cys Val
                                    90
Leu Pro Cys Asn Lys Ser Gln Ser Phe Lys Glu Asp Asp Gly Thr Trp
                                105
Lys Gly Asn Asp Asp Gly Lys Val Val Asn Asn Gln Pro Gln Arg Val
                            120
Met Asp Asp Arg Asn Gly Met Met Ala Gln Ala Gly Tyr Ile Gly Arg
                        135
Ile Thr Asn Asp Ala Arg Glu Asp Glu Met Glu Glu Asn Met Gly Gln
                    150
                                        155
Val Asn Thr Met Ile Gly Asn Leu Arg Asn Met Ala Leu Asp Met Gly
                165
                                    170
Ser Glu Leu Glu Asn Gln Asn Arg Gln Ile Asp Arg Ile Asn Arg Lys
            180
                                185
Gly Glu Ser Asn Glu Ala Arg Ile Ala Val Ala Asn Gln Arg Ala His
                            200
Gln Leu Leu Lys
    210
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<210> 14 <211> 203 <212> PRT

<213> Carassius auratus

## <400> 14

 Met
 Ala
 Asp
 Met
 Arg
 Asn
 Glu
 Leu
 Thr
 Asp
 Met
 Gln
 Ala

 Arg
 Ala
 Asp
 Glu
 Asp
 Glu
 Ser
 Leu
 Glu
 Ser
 Thr
 Arg
 Arg
 Met

 Arg
 Ala
 Asp
 Glu
 Leu
 Glu
 Ser
 Leu
 Glu
 Ser
 Thr
 Arg
 Arg
 Met

 Arg
 Ala
 Asp
 Ala
 Glu
 Arg
 Ile
 Arg
 Thr
 Leu
 Val

 Arg
 Asp
 Glu
 Glu
 Asp
 Ala
 Glu
 Arg
 Ile
 Glu
 Glu
 Arg

 Asp
 Glu
 Asp
 Glu
 Glu
 Arg
 Ile
 Glu
 Glu
 Glu
 Arg
 Ile
 Glu
 Glu
 Arg
 Arg
 Ile
 Arg
 Ile
 I

```
Gly Phe Ile Arg Arg Val Thr Asn Asp Ala Arg Glu Asn Glu Met Asp
                        135
Glu Asn Leu Glu Gln Val Gly Ser Ile Ile Gly Asn Leu Arg His Met
                    150
                                        155
Ala Leu Asp Met Gly Asn Glu Ile Asp Thr Gln Asn Arg Gln Ile Asp
                165
                                    170
Arg Ile Met Asp Met Ala Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala
                                185
Asn Gln Arg Ala Thr Lys Met Leu Gly Ser Gly
        195
                            200
<210> 15
<211> 212
<212> PRT
<213> Strongylocentrotus purpuratus
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<400> 15 Met Glu Asp Gln Asn Asp Met Asn Met Arg Ser Glu Leu Glu Glu Ile 10 Gln Met Gln Ser Asn Met Gln Thr Asp Glu Ser Leu Glu Ser Thr Arg 25 Arg Met Leu Gln Met Ala Glu Glu Ser Gln Asp Met Gly Ile Lys Thr 40 Leu Val Met Leu Asp Glu Gln Gly Glu Gln Leu Asp Arg Ile Glu Glu Gly Met Asp Gln Ile Asn Thr Asp Met Arg Glu Ala Glu Lys Asn Leu 75 Thr Gly Leu Glu Lys Cys Cys Gly Ile Cys Val Cys Pro Trp Lys Lys 90 Leu Gly Asn Phe Glu Lys Gly Asp Asp Tyr Lys Lys Thr Trp Lys Gly 100 105 Asn Asp Asp Gly Lys Val Asn Ser His Gln Pro Met Arg Met Glu Asp 120 Asp Arg Asp Gly Cys Gly Asn Ala Ser Met Ile Thr Arg Ile Thr 135 Asn Asp Ala Arg Glu Asp Glu Met Asp Glu Asn Leu Thr Gln Val Ser 150 155 Ser Ile Val Gly Asn Leu Arg His Met Ala Ile Asp Met Gln Ser Glu 165 170 Ile Gly Ala Gln Asn Ser Gln Val Gly Arg Ile Thr Ser Lys Ala Glu 185 Ser Asn Glu Gly Arg Ile Asn Ser Ala Asp Lys Arg Ala Lys Asn Ile 195 200 Leu Arg Asn Lys

<210> 16

210

<211> 249

<212> PRT

<213> Gallus gallus

<400> 16 Met Ala Glu Asp Ala Asp Met Arg Asn Glu Leu Glu Glu Met Gln Arg 10 Arg Ala Asp Gln Leu Ala Asp Glu Ser Leu Glu Ser Thr Arg Arg Met Leu Gln Leu Val Glu Glu Ser Lys Asp Ala Gly Ile Arg Thr Leu Val Met Leu Asp Glu Gln Gly Glu Gln Leu Asp Arg Val Glu Gly Met Asn His Ile Asn Gln Asp Met Lys Glu Ala Glu Lys Asn Leu Lys Asp Leu Gly Lys Cys Cys Gly Leu Phe Ile Cys Pro Cys Asn Lys Leu Lys 90 Ser Ser Asp Ala Tyr Lys Lys Ala Trp Gly Asn Asn Gln Asp Gly Val 105 Val Ala Ser Gln Pro Ala Arg Val Val Asp Glu Arg Glu Gln Met Ala 120 Ile Ser Gly Gly Phe Ile Arg Arg Val Thr Asn Asp Ala Arg Glu Asn 135 Glu Met Asp Glu Asn Leu Glu Gln Val Ser Gly Ile Ile Gly Asn Leu 150 155 Arg His Met Ala Leu Asp Met Gly Asn Glu Ile Asp Thr Gln Asn Arg 165 170 Gln Ile Asp Arg Ile Met Glu Lys Leu Ile Pro Ile Lys Pro Gly Leu 180 185 Met Lys Pro Thr Ser Val Gln Gln Arg Cys Ser Ala Val Lys Cys 200 Ser Lys Val His Phe Leu Leu Met Leu Ser Gln Arg Ala Val Pro Ser 215 Cys Phe Tyr His Gly Ile Tyr Leu Leu Gly Leu His Thr Cys Thr Tyr 230 235 Gln Pro His Cys Lys Cys Cys Pro Val 245

<210> 17 <211> 116 <212> PRT

<213> Mus musculus

<400> 17

 Met
 Ser
 Ala
 Thr
 Ala
 Ala
 Ala
 Thr
 Val
 Pro
 Pro
 Ala
 Pro
 Ala
 Gly
 Gly
 Gly
 Gly
 Fro
 Ala
 Pro
 Pro
 Pro
 Asn
 Leu
 Thr
 Ser
 Asn
 Arg
 Arg
 Leu

 Asn
 Val
 Asp
 Leu
 Glu
 Arg
 Asp
 Glu
 Leu
 Asp
 Ile
 Met
 Arg
 Val

 Asn
 Val
 Asp
 Leu
 Glu
 Arg
 Asp
 Glu
 Leu
 Eu
 Eu
 Asp
 Ile
 Met
 Arg
 Val

 Asn
 Val
 Asp
 Leu
 Glu
 Arg
 Asp
 Glu
 Leu
 Asp
 Asp

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Ile Ile Leu Gly Val Ile Cys Ala Ile Ile Leu Ile Ile Ile Val
                                105
Tyr Phe Ser Thr
        115
<210> 18
<211> 116
<212> PRT
<213> Bos taurus
<400> 18
Met Ser Ala Thr Ala Ala Thr Ala Pro Pro Ala Ala Pro Ala Gly Glu
Gly Gly Pro Pro Ala Pro Pro Pro Asn Leu Thr Ser Asn Arg Arg Leu
Gln Gln Thr Gln Ala Gln Val Asp Glu Val Val Asp Ile Met Arg Val
Asn Val Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp
Asp Arg Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser
                                        75
Ala Ala Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Leu Lys Met Met
                                    90
Ile Ile Leu Gly Val Ile Cys Ala Ile Ile Leu Ile Ile Ile Val
                                105
Tyr Phe Ser Ser
        115
<210> 19
<211> 114
<212> PRT
<213> Xenopus laevis
<400> 19
Met Ser Ala Pro Ala Ala Gly Pro Pro Ala Ala Pro Gly Asp Gly
                                    10
Ala Pro Gln Gly Pro Pro Asn Leu Thr Ser Asn Arg Arg Leu Gln Gln
                                25
Thr Gln Ala Gln Val Asp Glu Val Val Asp Ile Met Arg Val Asn Val
Asp Lys Val Leu Glu Arg Asp Thr Lys Leu Ser Glu Leu Asp Asp Arg
                        55
Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser Ala Ala
Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Met Lys Met Met Ile Ile
                85
Met Gly Val Ile Cys Ala Ile Ile Leu Ile Ile Ile Ile Val Tyr Phe
                                105
Ser Thr
```

```
<210> 20
<211> 104
<212> PRT
<213> Strongylocentrotus purpuratus
<400> 20
Met Ala Ala Pro Pro Pro Pro Gln Pro Ala Pro Ser Asn Lys Arg Leu
Gln Gln Thr Gln Ala Gln Val Asp Glu Val Val Asp Ile Met Arg Val
Asn Val Asp Lys Val Leu Glu Arg Asp Gln Ala Leu Ser Val Leu Asp
Asp Arg Ala Asp Ala Leu Gln Gln Gly Ala Ser Gln Phe Glu Thr Asn
Ala Gly Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Cys Lys Met Met
                    70
                                        75
Ile Ile Leu Ala Ile Ile Ile Ile Val Ile Leu Ile Ile Ile Val
                85
                                    90
Ala Ile Val Gln Ser Gln Lys Lys
            100
<210> 21
<211> 288
<212> PRT
<213> Homo sapiens
<400> 21
Met Lys Asp Arg Thr Gln Glu Leu Arg Thr Ala Lys Asp Ser Asp Asp
Asp Asp Asp Val Ala Val Thr Val Asp Arg Asp Arg Phe Met Asp Glu
            20
                                25
Phe Phe Glu Gln Val Glu Glu Ile Arg Gly Phe Ile Asp Lys Ile Ala
Glu Asn Val Glu Glu Val Lys Arg Lys His Ser Ala Ile Leu Ala Ser
Pro Asn Pro Asp Glu Lys Thr Lys Glu Glu Leu Glu Glu Leu Met Ser
                                        75
Asp Ile Lys Lys Thr Ala Asn Lys Val Arg Ser Lys Leu Lys Ser Ile
Glu Gln Ser Ile Glu Gln Glu Gly Leu Asn Arg Ser Ser Ala Asp
                                105
Leu Arg Ile Arg Lys Thr Gln His Ser Thr Leu Ser Arg Lys Phe Val
                            120
Glu Val Met Ser Glu Tyr Asn Ala Thr Gln Ser Asp Tyr Arg Glu Arg
                        135
                                            140
Cys Lys Gly Arg Ile Gln Arg Gln Leu Glu Ile Thr Gly Arg Thr Thr
                    150
                                        155
Thr Ser Glu Glu Leu Glu Asp Met Leu Glu Ser Gly Asn Pro Ala Ile
                                    170
Phe Ala Ser Gly Ile Ile Met Asp Ser Ser Ile Ser Lys Gln Ala Leu
```

185

190

180

 Ser
 Glu
 Ile
 Glu
 Thr
 Arg
 His
 Ser
 Glu
 Ile
 Lys
 Leu
 Glu
 Asn
 Ser

 Ile
 Arg
 Glu
 Leu
 His
 Asp
 Met
 Phe
 Met
 Asp
 Met
 Ala
 Met
 Leu
 Val
 Glu
 Glu
 Glu
 Asp
 Met
 Phe
 Met
 Asp
 Met
 Ala
 Met
 Leu
 Val
 Glu
 Glu
 Asp
 Arg
 Ile
 Glu
 Tyr
 Asp
 Val
 Glu
 Arg
 Ala
 Val
 Ser
 Asp
 Thr
 Lys
 Lys
 Ala
 Val
 Lys
 Lys
 Lys
 Ala
 Val
 Lys
 Cys
 C

<210> 22 <211> 288 <212> PRT

<213> Homo sapiens

<400> 22

Met Lys Asp Arg Thr Gln Glu Leu Arg Ser Ala Lys Asp Ser Asp Asp Glu Glu Val Val His Val Asp Arg Asp His Phe Met Asp Glu Phe 25 Phe Glu Gln Val Glu Glu Ile Arg Gly Cys Ile Glu Lys Leu Ser Glu Asp Val Glu Gln Val Lys Lys Gln His Ser Ala Ile Leu Ala Ala Pro Asn Pro Asp Glu Lys Thr Lys Gln Glu Leu Glu Asp Leu Thr Ala Asp 70 75 Ile Lys Lys Thr Ala Asn Lys Val Arg Ser Lys Leu Lys Ala Ile Glu 85 90 Gln Ser Ile Glu Glu Glu Gly Leu Asn Arg Ser Ser Ala Asp Leu 105 Arg Ile Arg Lys Thr Gln His Ser Thr Leu Ser Arg Lys Phe Val Glu 120 125 Val Met Thr Glu Tyr Asn Ala Thr Gln Ser Lys Tyr Arg Asp Arg Cys 135 140 Lys Asp Arg Ile Gln Arg Gln Leu Glu Ile Thr Gly Arg Thr Thr 150 155 Asn Glu Glu Leu Glu Asp Met Leu Glu Ser Gly Lys Leu Ala Ile Phe 165 170 Thr Asp Asp Ile Lys Met Asp Ser Gln Met Thr Lys Gln Ala Leu Asn 185 Glu Ile Glu Thr Arg His Asn Glu Ile Ile Lys Leu Glu Thr Ser Ile 200 Arg Glu Leu His Asp Met Phe Val Asp Met Ala Met Leu Val Glu Ser 215 Gln Gly Glu Met Ile Asp Arg Ile Glu Tyr Asn Val Glu His Ser Val 230 Asp Tyr Val Glu Arg Ala Val Ser Asp Thr Lys Lys Ala Val Lys Tyr 250 Gln Ser Lys Ala Arg Arg Lys Lys Ile Met Ile Ile Cys Cys Val

260 265 270

Val Leu Gly Val Val Leu Ala Ser Ser Ile Gly Gly Thr Leu Gly Leu 275 280 285

<210> 23

<211> 288

<212> PRT

<213> Mus musculus

<400> 23

Met Lys Asp Arg Thr Gln Glu Leu Arg Thr Ala Lys Asp Ser Asp Asp 1 5 10 15

Asp Asp Asp Val Thr Val Thr Val Asp Arg Asp Arg Phe Met Asp Glu
20 25 30

Phe Phe Glu Gln Val Glu Glu Ile Arg Gly Phe Ile Asp Lys Ile Ala 35 40 45

Glu Asn Val Glu Glu Val Lys Arg Lys His Ser Ala Ile Leu Ala Ser 50 55 60

Pro Asn Pro Asp Glu Lys Thr Lys Glu Glu Leu Glu Glu Leu Met Ser 65 70 75 80

Asp Ile Lys Lys Thr Ala Asn Lys Val Arg Ser Lys Leu Lys Ser Ile

85 90 95

Glu Gln Ser Ile Glu Gln Glu Gly Leu Asn Arg Ser Ser Ala Asp 100 105 110

Leu Arg Ile Arg Lys Thr Gln His Ser Thr Leu Ser Arg Lys Phe Val 115 120 125

Glu Val Met Ser Glu Tyr Asn Ala Thr Gln Ser Asp Tyr Arg Glu Arg 130 135 140

Cys Lys Gly Arg Ile Gln Arg Gln Leu Glu Ile Thr Gly Arg Thr Thr 145 150 155 160

Thr Ser Glu Glu Leu Glu Asp Met Leu Glu Ser Gly Asn Pro Ala Ile 165 170 175

Phe Ala Ser Gly Ile Ile Met Asp Ser Ser Ile Ser Lys Gln Ala Leu 180 185 190

Ser Glu Ile Glu Thr Arg His Ser Glu Ile Ile Lys Leu Glu Thr Ser 195 200 205

Ile Arg Glu Leu His Asp Met Phe Met Asp Met Ala Met Leu Val Glu 210 215 220

Ser Gln Gly Glu Met Ile Asp Arg Ile Glu Tyr Asn Val Glu His Ala 225 230 235 240

Val Asp Tyr Val Glu Arg Ala Val Ser Asp Thr Lys Lys Ala Val Lys
245 250 255

Tyr Gln Ser Lys Ala Arg Arg Lys Lys Ile Met Ile Ile Cys Cys 260 265 270

Val Ile Leu Gly Ile Ile Ile Ala Ser Thr Ile Gly Gly Ile Phe Gly 275 280 285

<210> 24

<211> 291

<212> PRT

<213> Drosophila sp.

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<400> 24
Met Thr Lys Asp Arg Leu Ala Ala Leu His Ala Ala Gln Ser Asp Asp
Glu Glu Glu Thr Glu Val Ala Val Asn Val Asp Gly His Asp Ser Tyr
                                25
Met Asp Asp Phe Phe Ala Gln Val Glu Glu Ile Arg Gly Met Ile Asp
                            40
Lys Val Gln Asp Asn Val Glu Glu Val Lys Lys His Ser Ala Ile
                        55
Leu Ser Ala Pro Gln Thr Asp Glu Lys Thr Lys Gln Glu Leu Glu Asp
Leu Met Ala Asp Ile Lys Lys Asn Ala Asn Arg Val Arg Gly Lys Leu
                                    90
Lys Gly Ile Glu Gln Asn Ile Glu Gln Glu Gln Gln Asn Lys Ser
            100
                                105
Ser Ala Asp Leu Arg Ile Arg Lys Thr Gln His Ser Thr Leu Ser Arg
                            120
Lys Phe Val Glu Val Met Thr Glu Tyr Asn Arg Thr Gln Thr Asp Tyr
                        135
Arg Glu Arg Cys Lys Gly Arg Ile Gln Arg Gln Leu Glu Ile Thr Gly
                   150
                                        155
Arg Pro Thr Asn Asp Asp Glu Leu Glu Lys Met Leu Glu Glu Gly Asn
                165
                                    170
Ser Ser Val Phe Thr Gln Gly Ile Ile Met Glu Thr Gln Gln Ala Lys
                                185
Gln Thr Leu Ala Asp Ile Glu Ala Arg His Gln Asp Ile Met Lys Leu
                            200
Glu Thr Ser Ile Lys Glu Leu His Asp Met Phe Met Asp Met Ala Met
                        215
                                            220
Leu Val Glu Ser Gln Gly Glu Met Ile Asp Arg Ile Glu Tyr His Val
                   230
                                        235
Glu His Ala Met Asp Tyr Val Gln Thr Ala Thr Gln Asp Thr Lys Lys
                                    250
Ala Leu Lys Tyr Gln Ser Lys Ala Arg Arg Lys Lys Ile Met Ile Leu
           260
                                265
Ile Cys Leu Thr Val Leu Gly Ile Leu Ala Ala Ser Tyr Val Ser Ser
                            280
Tyr Phe Met
   290
```

<210> 25

<211> 291

<212> PRT

<213> Caenorhabditis elegans

<400> 25

Met Thr Lys Asp Arg Leu Ser Ala Leu Lys Ala Ala Gln Ser Glu Asp 1 5 5 6 10 15 15 Glu Gln Gln Asp Asp Asp Met His Met Asp Thr Gly Asn Ala Gln Tyr Met 20 25 30 Glu Glu Phe Phe Glu Gln Val Glu Glu Glu Ile Arg Gly Ser Val Asp Ile

```
35
                            40
Ile Ala Asn Asn Val Glu Glu Val Lys Lys His Ser Ala Ile Leu
                        55
Ser Asn Pro Val Asn Asp Gln Lys Thr Lys Glu Glu Leu Asp Glu Leu
Met Ala Val Ile Lys Arg Ala Ala Asn Lys Val Arg Gly Lys Leu Lys
Leu Ile Glu Asn Ala Ile Asp His Asp Glu Gln Gly Ala Gly Asn Ala
                                105
Asp Leu Arg Ile Arg Lys Thr Gln His Ser Thr Leu Ser Arg Arg Phe
                            120
Val Glu Val Met Thr Asp Tyr Asn Lys Thr Gln Thr Asp Tyr Arg Glu
                        135
Arg Cys Lys Gly Arg Ile Gln Arg Gln Leu Asp Ile Ala Gly Lys Gln
                    150
                                        155
Val Gly Asp Glu Asp Leu Glu Glu Met Ile Glu Ser Gly Asn Pro Gly
                165
                                    170
Val Phe Thr Gln Gly Ile Ile Thr Asp Thr Gln Gln Ala Lys Gln Thr
            180
                                185
Leu Ala Asp Ile Glu Ala Arg His Asn Asp Ile Met Lys Leu Glu Ser
                            200
Ser Ile Arg Glu Leu His Asp Met Phe Met Asp Met Ala Met Leu Val
                        215
                                            220
Glu Ser Gln Gly Glu Met Val Asp Arg Ile Glu Tyr Asn Val Glu His
                    230
                                        235
Ala Lys Glu Phe Val Asp Arg Ala Val Ala Asp Thr Lys Lys Ala Val
Gln Tyr Gln Ser Lys Ala Arg Arg Lys Lys Ile Cys Ile Leu Val Thr
            260
                                265
Gly Val Ile Leu Ile Thr Gly Leu Ile Ile Phe Ile Leu Phe Tyr Ala
                            280
Lys Val Leu
   290
```

<210> 26 <211> 288 <212> PRT

<213> Strongylocentrotus purpuratus

<400> 26

 Met
 Arg
 Asp
 Arg
 Leu
 Gly
 Ser
 Leu
 Lys
 Arg
 Asn
 Glu
 Asp
 Val
 Asp
 Val

 Gly
 Pro
 Glu
 Val
 Ala
 Val
 Asn
 Val
 Glu
 Ser
 Glu
 Lys
 Phe
 Met
 Glu
 Glu
 Glu

 Phe
 Phe
 Glu
 Glu
 Val
 Glu
 Val
 Arg
 Asn
 Asn
 Ile
 Asp
 Lys
 Ile
 Ser

 Lys
 Asn
 Val
 Arg
 Asn
 Asp
 Ile
 Leu
 Ser
 Ala

 So
 50
 55
 60
 60
 60
 80

 Pro
 Gln
 Ala
 Asp
 Glu
 Lys
 Val
 Lys
 Asp
 Glu
 Leu
 Met
 Met

 65
 70
 75
 80
 Arg
 Arg
 Ala
 Lys
 Met
 Met

```
Glu Gln Ser Ile Glu Gln Glu Glu Ser Ala Lys Met Asn Ser Ala Asp
            100
                                105
Val Arg Ile Arg Lys Thr Gln His Ser Thr Leu Ser Arg Lys Phe Val
                            120
Glu Val Met Thr Asp Tyr Asn Ser Thr Gln Thr Asp Tyr Arg Glu Arg
                        135
Cys Lys Gly Arg Ile Gln Arg Gln Leu Glu Ile Thr Gly Lys Ser Thr
                    150
Thr Asp Ala Glu Leu Glu Asp Met Leu Glu Ser Gly Asn Pro Ala Ile
                                    170
Phe Thr Ser Gly Ile Ile Met Asp Thr Gln Gln Ala Lys Gln Thr Leu
                                185
Arg Asp Ile Glu Ala Arg His Asn Asp Ile Ile Lys Leu Glu Ser Ser
                            200
Ile Arg Glu Leu His Asp Met Phe Met Asp Met Ala Met Leu Val Glu
                        215
                                            220
Ser Gln Gly Glu Met Ile Asp Arg Ile Glu Tyr Asn Val Glu Gln Ser
                                        235
                    230
Val Asp Tyr Val Glu Thr Ala Lys Met Asp Thr Lys Lys Ala Val Lys
                245
                                    250
Tyr Gln Ser Lys Ala Arg Arg Lys Lys Phe Tyr Ile Ala Ile Cys Cys
                                265
Gly Val Ala Leu Gly Ile Leu Val Leu Val Leu Ile Ile Val Leu Ala
        275
                            280
                                                285
<210> 27
<211> 13
<212> PRT
<213> Homo sapiens
<400> 27
Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met
<210> 28
<211> 15
<212> PRT
<213> Homo sapiens
<400> 28
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys
<210> 29
<211> 16
<212> PRT
<213> Homo sapiens
<400> 29
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met
```

Gly

H

```
1
                5
                                     10
                                                         15
<210> 30
<211> 17
<212> PRT
<213> Homo sapiens
<400> 30
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met
                                                         15
Leu
<210> 31
<211> 17
<212> PRT
<213> Homo sapiens
<400> 31
Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys
Met
<210> 32
<211> 18
<212> PRT
<213> Homo sapiens
<400> 32
Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys
1
Met Leu
<210> 33
<211> 33
<212> PRT
<213> Mus musculus
<400> 33
Gln Asn Arg Gln Ile Asp Arg Ile Met Glu Lys Ala Asp Ser Asn Lys
                                     10
Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser
            20
                                25
                                                     30
```

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<210> 34
<211> 32
<212> PRT
<213> Homo sapiens
<400> 34
Gln Asn Pro Gln Ile Lys Arg Ile Thr Asp Lys Ala Asp Thr Asn Arg
Asp Arg Ile Asp Ile Ala Asn Ala Arg Ala Lys Lys Leu Ile Asp Ser
                                25
                                                     30
<210> 35
<211> 32
<212> PRT
<213> Mus musculus
<400> 35
Gln Asn Gln Gln Ile Gln Lys Ile Thr Glu Lys Ala Asp Thr Asn Lys
Asn Arg Ile Asp Ile Ala Asn Thr Arg Ala Lys Lys Leu Ile Asp Ser
                                25
<210> 36
<211> 34
<212> PRT
<213> Gallus gallus
<400> 36
Gln Asn Arg Gln Ile Asp Arg Ile Met Glu Lys Leu Ile Pro Ile Lys
                 5
                                    10
Pro Gly Leu Met Lys Pro Thr Ser Val Gln Gln Arg Cys Ser Ala Val
                                25
Val Lys
<210> 37
<211> 33
<212> PRT
<213> Carassius auratus
<400> 37
Gln Asn Arg Gln Ile Asp Arg Ile Met Asp Met Ala Asp Ser Asn Lys
                                    10
Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser
            20
                                25
Gly
```

<210> 38

```
<211> 33
<212> PRT
<213> Carassius auratus
<400> 38
Gln Asn Arg Gln Ile Asp Arg Ile Met Glu Lys Ala Asp Ser Asn Lys
                                     10
Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly Ser
            20
                                25
Gly
<210> 39
<211> 30
<212> PRT
<213> Torpedo sp.
<400> 39
Gln Asn Ala Gln Val Asp Arg Ile Val Val Lys Gly Asp Met Asn Lys
                                     10
Ala Arg Ile Asp Glu Ala Asn Lys His Ala Thr Lys Met Leu
            20
                                25
<210> 40
<211> 33
<212> PRT
<213> Strongylocentrotus purpuratus
<400> 40
Gln Asn Ser Gln Val Gly Arg Ile Thr Ser Lys Ala Glu Ser Asn Glu
                                     10
Gly Arg Ile Asn Ser Ala Asp Lys Arg Ala Lys Asn Ile Leu Arg Asn
            20
Lys
<210> 41
<211> 31
<212> PRT
<213> Caenorhabditis elagans
<400> 41
Gln Asn Arg Gln Leu Asp Arg Ile His Asp Lys Gln Ser Asn Glu Val
                                     10
Arg Val Glu Ser Ala Asn Lys Arg Ala Lys Asn Leu Ile Thr Lys
                                25
            20
                                                     30
<210> 42
<211> 31
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<212> PRT
<213> Drosophila sp.
<400> 42
Gln Asn Arg Gln Ile Asp Arg Ile Asn Arg Lys Gly Glu Ser Asn Glu
                                     10
Ala Arg Ile Ala Val Ala Asn Gln Arg Ala His Gln Leu Leu Lys
                                25
<210> 43
<211> 32
<212> PRT
<213> Hirudinida sp.
<400> 43
Gln Asn Arg Gln Val Asp Arg Ile Asn Asn Lys Met Thr Ser Asn Gln
Leu Arg Ile Ser Asp Ala Asn Lys Arg Ala Ser Lys Leu Leu Lys Glu
                                25
<210> 44
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
<400> 44
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Ala
Leu
<210> 45
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
<221> MOD RES
<222> 16
<223> Xaa=Nle
<400> 45
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Xaa
                                     10
Leu
```

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<210> 46
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Ala Met
1
Leu
<210> 47
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
<400> 47
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Ser Lys Met
Leu
<210> 48
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
<221> MOD RES
<222> 14
<223> Xaa=Abu
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Xaa Lys Met
1
                 5
                                                         15
Leu
```

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<211> 17
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
<221> MOD RES
<222> 13
<223> Xaa=Abu
<400> 49
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Xaa Thr Lys Met
                                     10
Leu
<210> 50
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
<400> 50
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Ala Arg Ala Thr Lys Met
Leu
<210> 51
<211> 16
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
<221> MOD RES
<222> 11
<223> Xaa=Abu
<400> 51
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Xaa Ala Thr Lys Met Leu
                                                         15
<210> 52
<211> 17
<212> PRT
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<213> Artificial Sequence
<220>
<223> synthetic peptide
<400> 52
Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Asn Arg Ala Thr Lys Met
Leu
<210> 53
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
<400> 53
Ser Asn Lys Thr Arg Ile Asp Glu Ala Ala Gln Arg Ala Thr Lys Met
Leu
<210> 54
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
<221> MOD RES
<222> 9
<223> Xaa=Abu
<400> 54
Ser Asn Lys Thr Arg Ile Asp Glu Xaa Asn Gln Arg Ala Thr Lys Met
1
                                     10
Leu
<210> 55
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
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<400> 55
Ser Asn Lys Thr Arg Ile Asp Gln Ala Asn Gln Arg Ala Thr Lys Met
 1
                                     10
                                                         15
Leu
<210> 56
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
<400> 56
Ser Asn Lys Thr Arg Ile Asn Glu Ala Asn Gln Arg Ala Thr Lys Met
                                     10
Leu
<210> 57
<211> 40
<212> PRT
<213> Homo sapiens
<400> 57
Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg
Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Ser Ser Ala Ala
Lys Leu Lys Arg Lys Tyr Trp Trp
        35
<210> 58
<211> 40
<212> PRT
<213> Bos taurus
<400> 58
Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg
                                     10
Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser Ala Ala
            20
                                25
                                                     30
Lys Leu Lys Arg Lys Tyr Trp Trp
        35
                            40
<210> 59
<211> 40
```

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<212> PRT
<213> Rattus sp.
<400> 59
Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg
                                    10
Ala Asp Ala Leu Gln Ala Gly Ala Ser Val Phe Glu Ser Ser Ala Ala
Lys Leu Lys Arg Lys Tyr Trp Trp
        35
<210> 60
<211> 40
<212> PRT
<213> Rattus sp.
<400> 60
Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg
                                     10
Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser Ala Ala
                                25
Lys Leu Lys Arg Lys Tyr Trp Trp
        35
<210> 61
<211> 40
<212> PRT
<213> Rattus sp.
<400> 61
Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg
Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser Ala Ala
Lys Leu Lys Arg Lys Tyr Trp Trp
        35
<210> 62
<211> 40
<212> PRT
<213> Rattus sp.
<400> 62
Asp Leu Val Ala Gln Arg Gly Glu Arg Leu Glu Leu Leu Ile Asp Lys
Thr Glu Asn Leu Val Asp Ser Ser Val Thr Phe Lys Thr Thr Ser Arg
                                25
Asn Leu Ala Arg Ala Met Cys Met
        35
```

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<210> 63
<211> 32
<212> PRT
<213> Gallus gallus
<400> 63
Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg Ala Asp Ala Leu
                                    10
Gln Ala Gly Ala Ser Val Phe Glu Ser Ser Ala Ala Lys Leu Lys Arg
            20
                                25
<210> 64
<211> 32
<212> PRT
<213> Gallus gallus
<400> 64
Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg Ala Asp Ala Leu
                                    10
Gln Ala Gly Ala Ser Gln Phe Glu Thr Ser Ala Ala Lys Leu Lys Arg
<210> 65
<211> 40
<212> PRT
<213> Torpedo sp.
<400> 65
Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Asp Asp Arg
Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Ser Ser Ala Ala
Lys Leu Lys Arg Lys Tyr Trp Trp
        35
<210> 66
<211> 40
<212> PRT
<213> Strongylocentrotus purpuratus
<400> 66
Asp Lys Val Leu Asp Arg Asp Gly Ala Leu Ser Val Leu Asp Asp Arg
                                     10
Ala Asp Ala Leu Gln Gln Gly Ala Ser Gln Phe Glu Thr Asn Ala Gly
Lys Leu Lys Arg Lys Tyr Trp Trp
        35
```

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<210> 67
<211> 40
<212> PRT
<213> Aplysia sp.
<400> 67
Glu Lys Val Leu Asp Arg Asp Gln Lys Ile Ser Gln Leu Asp Asp Arg
Ala Glu Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Ala Ser Ala Gly
                                 25
Lys Leu Lys Arg Lys Tyr Trp Trp
        35
<210> 68
<211> 40
<212> PRT
<213> Teuthoida sp.
<400> 68
Asp Lys Val Leu Glu Arg Asp Ser Lys Ile Ser Glu Leu Asp Asp Arg
Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Ala Ser Ala Gly
                                 25
Lys Leu Lys Arg Lys Phe Trp Trp
        35
<210> 69
<211> 40
<212> PRT
<213> Caenorhabditis elegans
<400> 69
Asn Lys Val Met Glu Arg Asp Val Gln Leu Asn Ser Leu Asp His Arg
                 5
                                     10
Ala Glu Val Leu Gln Asn Gly Ala Ser Gln Phe Gln Gln Ser Ser Arg
                                 25
Glu Leu Lys Arg Gln Tyr Trp Trp
        35
<210> 70
<211> 40
<212> PRT
<213> Drosophila sp.
<400> 70
Glu Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu Leu Gly Glu Arg
Ala Asp Gln Leu Glu Gly Gly Ala Ser Gln Ser Glu Gln Gln Ala Gly
Lys Leu Lys Arg Lys Gln Trp Trp
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LOG FROGE CASSEL
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<210> 71
<211> 40
<212> PRT
<213> Drosophila sp.
<400> 71
Glu Lys Val Leu Glu Arg Asp Ser Lys Leu Ser Glu Leu Asp Asp Arg
Ala Asp Ala Leu Gln Gln Gly Ala Ser Gln Phe Glu Gln Gln Ala Gly
                                 25
Lys Leu Lys Arg Lys Phe Trp Leu
        35
<210> 72
<211> 39
<212> PRT
<213> Hirudinida sp.
<400> 72
Asp Lys Val Leu Glu Lys Asp Gln Lys Leu Ala Glu Leu Asp Arg Ala
Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu Ala Ser Ala Gly Lys
Leu Lys Arg Lys Phe Trp Trp
        35
<210> 73
<211> 18
<212> PRT
<213> Homo sapiens
<400> 73
Glu Arg Ala Val Ser Asp Thr Lys Lys Ala Val Lys Tyr Gln Ser Lys
                                     10
                                                         15
Ala Arg
<210> 74
<211> 18
<212> PRT
<213> Bos taurus
<400> 74
Glu Arg Ala Val Ser Asp Thr Lys Lys Ala Val Lys Tyr Gln Ser Lys
1
                 5
                                     10
Ala Arg
```

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<210> 75
<211> 18
<212> PRT
<213> Rattus sp.
<400> 75
Glu His Ala Lys Glu Glu Thr Lys Lys Ala Ile Lys Tyr Gln Ser Lys
                                     10
Ala Arg
<210> 76
<211> 18
<212> PRT
<213> Rattus sp.
<400> 76
Glu Lys Ala Arg Asp Glu Thr Arg Lys Ala Met Lys Tyr Gln Gly Gly
                                     10
Ala Arg
<210> 77
<211> 18
<212> PRT
<213> Rattus sp.
<400> 77
Glu Arg Gly Gln Glu His Val Lys Ile Ala Leu Glu Asn Gln Lys Lys
                 5
Ala Arg
<210> 78
<211> 18
<212> PRT
<213> Gallus gallus
<400> 78
Val Pro Glu Val Phe Val Thr Lys Ser Ala Val Met Tyr Gln Cys Lys
                                                         15
Ser Arg
<210> 79
<211> 18
<212> PRT
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```
<213> Strongylocentrotus purpuratus
<400> 79
Val Arg Arg Gln Asn Asp Thr Lys Lys Ala Val Lys Tyr Gln Ser Lys
                                     10
Ala Arg
<210> 80
<211> 18
<212> PRT
<213> Aplysia sp.
<400> 80
Glu Thr Ala Lys Met Asp Thr Lys Lys Ala Val Lys Tyr Gln Ser Lys
                                     10
Ala Arg
<210> 81
<211> 18
<212> PRT
<213> Teuthoida sp.
<400> 81
Glu Thr Ala Lys Val Asp Thr Lys Lys Ala Val Lys Tyr Gln Ser Lys
Ala Arg
<210> 82
<211> 18
<212> PRT
<213> Drosophila sp.
Gln Thr Ala Thr Gln Asp Thr Lys Lys Ala Leu Lys Tyr Gln Ser Lys
1
                                                         15
Ala Arg
<210> 83
<211> 18
<212> PRT
<213> Hirudinida sp.
<400> 83
Glu Thr Ala Ala Ala Asp Thr Lys Lys Ala Met Lys Tyr Gln Ser Ala
```

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Ala Arg
```

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<210> 84
<211> 5
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic construct
<400> 84
Gly Gly Gly Ser
<210> 85
<211> 19
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic construct
<221> MOD_RES
<222> 1
<223> Xaa=fluorescein-modified lysine
<221> MOD RES
<222> 20
<223> Xaa=tetramethylrhodamine-modified lysine
<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal
<400> 85
Xaa Asp Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys
                                     10
Met Leu Xaa
<210> 86
<211> 13
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic construct
<221> MOD_RES
```

```
<222> 1
<223> Xaa=fluorescein-modified lysine
Xaa Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln
                 5
<210> 87
<211> 7
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic construct
<221> MOD RES
<222> 7
<223> Xaa=tetramethylrhodamine-modified lysine
<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal
<400> 87
Arg Ala Thr Lys Met Leu Xaa
<210> 88
<211> 23
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
<221> MOD RES
<222> 1
<223> Xaa=fluorescein-modified lysine
<221> MOD RES
<222> 23
<223> Xaa=tetramethylrhodamine-modified lysine
<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal
<400> 88
Xaa Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr
Lys Met Leu Gly Ser Gly Xaa
```

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<210> 89
<211> 21
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
<221> MOD RES
<222> 1
<223> Xaa=fluorescein-modified lysine
<221> MOD RES
<222> 21
<223> Xaa=tetramethylrhodamine-modified lysine
<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal
<400> 89
Xaa Ala Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala
                                     10
                                                         15
Thr Lys Met Leu Xaa
            20
<210> 90
<211> 24
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
<221> MOD RES
<222> 1
<223> Xaa=fluorescein-modified lysine
<221> MOD_RES
<222> 24
<223> Xaa=tetramethylrhodamine-modified lysine
<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal
<400> 90
Xaa Ala Asp Ser Asn Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala
                                     10
```

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Thr Lys Met Leu Gly Ser Gly Xaa 20
```

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<210> 91
<211> 16
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
<221> MOD RES
<222> 1
<223> Xaa=fluorescein-modified lysine
<221> MOD RES
<222> 16
<223> Xaa=tetramethylrhodamine-modified lysine
<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal
<400> 91
Xaa Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Xaa
                 5
<210> 92
<211> 19
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
<221> MOD RES
<222> 1
<223> Xaa=fluorescein-modified lysine
<221> MOD RES
<222> 19
<223> Xaa=tetramethylrhodamine-modified lysine
<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal
<400> 92
Xaa Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly
Ser Gly Xaa
```

```
<210> 93
<211> 22
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
<221> MOD RES
<222> 1
<223> Xaa=fluorescein-modified lysine
<221> MOD RES
<222> 22
<223> Xaa=tetramethylrhodamine-modified lysine
<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal
<400> 93
Xaa Met Glu Lys Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys
Met Leu Gly Ser Gly Xaa
<210> 94
<211> 16
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
<221> MOD RES
<222> 1
<223> Xaa-DABCYL modified lysine
<221> MOD RES
<222> 16
<223> Xaa=EDANS modified glutamate
<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal
<400> 94
Xaa Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Xaa
```

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<210> 95
<211> 19
<212> PRT
<213> Artificial Sequence
<220>
<223> synthetic peptide
<221> MOD RES
<222> 1
<223> Xaa=DABCYL modified lysine
<221> MOD RES
<222> 19
<223> Xaa=EDANS modified lysine
<221> AMIDATION
<222> (0)...(0)
<223> at the C-terminal
<400> 95
Xaa Thr Arg Ile Asp Glu Ala Asn Gln Arg Ala Thr Lys Met Leu Gly
Ser Gly Xaa
<210> 96
<211> 118
<212> PRT
<213> Homo sapiens
<400> 96
Met Ser Ala Pro Ala Gln Pro Pro Ala Glu Gly Thr Glu Gly Thr Ala
                                    10
Pro Gly Gly Gly Pro Pro Gly Pro Pro Pro Asn Met Thr Ser Asn Arg
                                25
Arg Leu Gln Gln Thr Gln Ala Gln Val Glu Val Val Asp Ile Ile
                            40
Arg Val Asn Val Asp Lys Val Leu Glu Arg Asp Gln Lys Leu Ser Glu
                        55
Leu Asp Asp Arg Ala Asp Ala Leu Gln Ala Gly Ala Ser Gln Phe Glu
                                        75
Ser Ser Ala Ala Lys Leu Lys Arg Lys Tyr Trp Trp Lys Asn Cys Lys
                                     90
Met Met Ile Met Leu Gly Ala Ile Cys Ala Ile Ile Val Val Val Ile
                                105
            100
Val Ile Tyr Phe Phe Thr
        115
```